Dina Mistry

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Interests

complex networks, temporal networks, behavioural feedback, contagion phenomena, modeling and forecasting emerging infectious disease outbreaks, clustering and graph measures, community structure and detection, information diffusion, mapping influence

Computational Skills

Python, Pandas, C++, MATLab, SQL

Education

since 2014 **Ph.D** candidate in Physics — Northeastern University, Boston, MA, USA
Advisor: Prof. Alessandro Vespignani

2012–2014 **M.Sc.** in Physics — Northeastern University, Boston, MA, USA

2007–2012 **Hon. B.Sc. with High Distinction** — University of Toronto, Toronto, ON, Canada
Specialization in Physics and Astronomy, Minor in Mathematics

Research Experience

since 2014 **Graduate Research Assistant** — MOBS Lab, Northeastern University
Thesis work on inferring social contact patterns in the context of infectious disease spreading, epidemic modeling, and information spreading dynamics in complex networks.

2011 **Natural Sciences and Engineering Research Council of Canada Undergraduate Student Research Award in Physics** — University of Toronto
Held a competitive summer research award from NSERC. Conducted experiments to study the nonlinear growth patterns of stalactites.

2010-2011 **Undergraduate Research Student** — University of Toronto
Thesis under the supervision of Prof. Sabine Stanley, studying the magnetic field geometry of Saturn.

Schools and Advanced Programs

07-08 2015 **Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID)** — University of Washington, Seattle, WA, USA
Participant in summer workshops on infectious disease modeling. Certificates obtained in the modules:

- Probability and Statistical Inference
- Stochastic Epidemic Models with Inference
- Simulation-based Inference for Epidemiological Dynamics
- MCMC I for Infectious Diseases
- MCMC II for Infectious Diseases

Publications

5. **D. Mistry**, K. Sun, A. Pastore y Piontti, M. F. C. Gomes, L. Rossi, A. Vespignani. Characterizing the global spread of epidemics and their predictability through human mobility networks. *Manuscript in progress.*

4. **D. Mistry**, A. Pastore y Piontti, M. Litvinova, M. F. C. Gomes, S. A. Haque, K. Mu, X. Xiong, Q. Liu, L. Fumanelli, S. Merler, M. Ajelli, A. Vespignani. A data-driven approach to inferring social contact patterns: the influence of cultural and societal diversity on infectious disease spreading around the world. *Manuscript in progress.*

3. K. Sun, Q. Zhang, A. Pastore-Piontti, M. Chinazzi, **D. Mistry**, N. E. Dean, D. P. Rojas, S. Merler, P. Poletti, L. Rossi, M. E. Halloran, I. M. Longini, A. Vespignani. Quantifying the risk of Zika virus local transmission in the continental US during the 2015-2016 ZIKV epidemic. BioMed Central Medicine (2018). [bioRvix link.] *Manuscript submitted for review*.

2. Q. Zhang, K. Sun, M. Chinazzi, A. Pastore-Piontti, N. E. Dean, D. P. Rojas, S. Merler, **D. Mistry**, P. Poletti, L. Rossi, M. Bray, M. E. Halloran, I. M. Longini, A. Vespignani. Spreading of Zika virus in the Americas. Proceedings of the National Academy of Sciences (2017): 201620161. [paper link , www.zika-model.org]

1. **D. Mistry**, Q. Zhang, N. Perra, A. Baronchelli, Committed activists and the reshaping of status-quo social consensus, Phys. Rev. E. 92, 042805, 2015. [paper link]

Course Work

2014 PHYS 5116: Complex Networks. Independent final research project. Involved web scraping to extract data to construct a network of musicians connected to each other by cover songs. The aim was to characterize the network and see if the 1976 Copyright Act had effects on the growth of the network and the spread of musical influence.

Invited Talks

2017 The influence of cultural and societal diversity on epidemic spreading

Conference on Complex Systems, Cancun, Mexico

Professional Presentations

2018 A data-driven computational approach to infer social contact networks in the context of infectious disease modeling

International Conference on Complex Networks, Boston, MA, USA

2018 Data-driven approaches to stochastic infectious disease modeling

Grad Research Panel, Snell Library, Northeastern University

2017 Committed activists and the reshaping of status-quo social consensus

International School and Conference on Network Science, Indianapolis, IN, USA

Poster Presentations

2016 Using data-driven models to infer social contact patterns in the context of epidemics

Research, Innovation and Scholarship Expo, Northeastern University

Awards and Honours

2014-2018 **Graduate Research Assistantship Award** Department of Physics, Northeastern University

2015 **Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID) Scholarship**
University of Washington, Seattle, USA

2012-2014 **Graduate Teaching Assistantship Award** Department of Physics, Northeastern University

2012 **Anna and Alex Beverly Memorial Fellowship**
For the purpose of graduate studies within or outside Canada, University College, University of Toronto

2010-2012 **Marie Curie Sklodowska Association Undergraduate Scholarship**
For academic excellence in Physics, University of Toronto

2011 **Undergraduate Student Research Award**
Natural Sciences and Engineering Research Council of Canada held at The University of Toronto

2008 **C. L. Burton Scholarship for Mathematiccs and Physical Sciences**
For academic excellence, University of Toronto

2008-2012 **Dean's List of Scholars**
Faculty of Arts & Science, University of Toronto

2007 **Top Scholar's Scholarship**
For academic excellence, University of Toronto

2007 **President's Entrance Scholarship**
University of Toronto

Service

2018 Conference Program Committee member, Art of Networks reception and Society of Young Network Scientists (SYNS) panel organizer, International Conference on Complex Networks, Boston, MA, USA

2017 Manuscript subreviewer: PLOS ONE

2017 Diversity and Inclusion Town Hall Panel: College of Science, Northeastern University

2014-2016 Physics Graduate Student Representative: Northeastern University

2011-2012 Vice President of Academic Affiars, Physics & Astronomy Student Union: University of Toronto

Leadership

2018 Co-organized *Paper Unwind*, a pre-conference event for young Network Science researchers to learn about the process of publishing interdisciplinary research. International Conference on Complex Networks, Boston, MA, USA.

2017 Organized panel discussions with post doctoral fellows and faculty for graduate students interested in pursuing careers in academia. Network Science Institute, Northeastern University.

2017 Organized the first series of workshops and seminars on professional development for the Physics graduate student body, Northeastern University.

2014-2017 Co-organizer and student leader of graduate open house, Department of Physics, Northeastern University.

2013 Volunteer with TEDx Cambridge, Cambridge, MA, USA.

2011-2012 Organized academic events for 200+ undergraduate students: academic & career talks, graduate school information seminars, social events.

2012 Outreach Science Volunteer, University of Toronto. Assisted in the International Transit of Venus public outreach event with over 5000 people in attendance, an international collaboration with universities around the world.

Media

Projecting the spread of Zika virus: The Atlantic, New Scientist, Homeland Security News Wire, WBUR Boston's NPR News Station

PhD Profile: Canis lupus Graduate Student Newsletter, Northeastern University

Teaching

2014 Lab instructor: US Pathway Program, Department of Physics, Northeastern University. Summer bridge program for international students from China and Nigeria.

2012-2014 Lab instructor: Introductory Physics Labs (16 sections), Department of Physics, Northeastern University

2013-2014 Physics Workshop Leader (6 sections), Department of Physics, Northeastern University

2012 Interactive Learning Sessions (ILS), Department of Physics, Northeastern University

Extra Activities

2003-2010 In another life, played lead steel drums in various bands. Section leader guiding less experienced players in music reading, technique, and performance.